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AGRICULTURAL TRAINING COURSES FOR EMPLOYED TEACHERS

With a Suggested Reading Course in Agriculture Based on Farmers' Bulletins.

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INTRODUCTION.

Perhaps the most noteworthy feature in the educational progress of the Nation during recent years has been the development of agricultural education, particularly in the public schools. From May, 1910, to March, 1912, the total number of institutions giving courses in agriculture increased from 863 to 2,575, or at the rate of more than 76 each month; and this increase is found almost entirely in schools of the secondary grade. This does not take into account the vast number of elementary and rural schools into which some instruction in agriculture has been introduced of which no definite record is obtainable, but of which there must be an enormous number, since in at least 19 States agriculture is required by law to be taught in the common schools.[1]

It is altogether probable that the spread of agricultural instruction would have been even more rapid had it not been for the difficulty which has been encountered in procuring teachers able to give instruction in the subject. Responding to the demand for teachers of agriculture, the normal schools are very generally introducing courses in agriculture, while many of the agricultural colleges, on the other hand, are offering special courses for teachers. This has resulted in providing a limited number of trained teachers—hardly enough, however, to supply the needs of the secondary schools and special schools of agriculture. Few, indeed, of the normal or college trained teachers find employment in the rural common schools.

[1] The States in which agriculture is required to be taught either in all common schools or at least in rural schools are Alabama, Arkansas, Georgia, Iowa, Louisiana, Mississippi, Missouri, North Carolina, North Dakota, Oklahoma, Ohio, Oregon, South Carolina, South Dakota, Tennessee, Texas, Washington, West Virginia, and Wisconsin. In some of these States the subject is not required by legislative act, but is put into the required course of study prescribed by the State superintendent of public instruction pursuant to authority of law. In addition to these, Idaho, Pennsylvania, and Utah require agriculture taught in all rural high schools.

The result is that while there has been a widespread demand for the teaching of agriculture in the rural schools, the teachers who are found in these schools are generally poorly equipped to give such instruction.

Added to the urgent demand from the schools themselves that teachers should have training in agriculture, there has been the spur of legislation in some 19 States in which an examination in agriculture is now one of the prerequisites for obtaining a teachers' certificate.[1]

Thus it will be seen that one of the most urgent things which now needs to be done in order to promote the development of agricultural education is to provide better means of training teachers in agriculture. This need is especially urgent in the case of teachers already in service in elementary schools. The widespread movement toward the development of teacher-training courses in high schools and the parallel growth of agricultural courses in these schools will undoubtedly result in a few years in producing teachers for the common schools who have had considerably more training, both professionally and in scientific agriculture, than those now in service. The immediate need, therefore, seems to be to provide means by which teachers now engaged in regular school work, who have not had the opportunity to study agriculture, and who can not afford to take a year or more away from their employment in order to pursue a course of study at an agricultural school, may still receive a working knowledge of the subject in order to keep abreast of the times, as well as to comply with the requirements of the law in those States where agriculture must be taught.

With a view to ascertaining just what means are now open to employed teachers, by which they may acquire agricultural training and at the same time continue in service, this office has undertaken an investigation of the subject among the educational institutions of the country, and the report of this investigation is included in this bulletin.

MEANS BY WHICH EMPLOYED TEACHERS MAY ACQUIRE AGRICULTURAL TRAINING.

SUMMER COURSES.

Without doubt the most popular as well as the most efficient means of giving training to employed teachers are the summer courses offered by the colleges and normal schools, and a large proportion of these include more or less complete courses in agriculture. Since these summer sessions are almost without exception intended specifically for the benefit of teachers, it follows that in the majority of

[1] These States are: Alabama, Arkansas, Florida, Georgia, Kansas, Louisiana, Mississippi, Missouri, Nebraska, North Carolina, North Dakota (optional), Ohio, Oklahoma, South Carolina (may be required for county certificates), Tennessee, Texas, Virginia (optional), West Virginia, and Wisconsin.

cases courses are presented which aim to help teachers in elementary and secondary schools in the teaching of agriculture, particular attention being given to the pedagogy of the subject.

Most of the summer sessions continue for at least six weeks. Some are in session for as long as 10 or even 12 weeks. In some it is possible for the student of agriculture who wishes to specialize in that subject to have two lessons each day in agriculture, thus completing in 6 weeks, for example, what amounts to 12 weeks' work. In most of the institutions of college grade college credit is allowed for work done at the summer session. In two or three institutions the regular school session continues throughout the summer, the faculty, equipment, and methods of the summer quarter being the same as during any other term of the school year. For the teacher who cares to sacrifice the possible pleasures of the vacation period for the opportunity of self-improvement, and who can afford the expense, the advantages of the summer school over any form of nonresident study are obvious. The instruction is usually of a high class; there are the inspiration and enthusiasm which come from association with others interested in the same line of work; and there are usually adequate equipment and apparatus for laboratory and field work, since the sessions are held at some established college or normal school, so that its entire plant is available to the summer students.

The following is a list of institutions maintaining summer courses in agriculture:

List of institutions maintaining courses in agriculture in summer sessions.

State.	Institution.	Location.	Nature of course offered.
Alabama	Agricultural and Mechanical College for Negroes.	Normal	El. agr. for teachers.
	Alabama Polytechnic Institute.	Auburn	El. agr., teaching agr., and gardening.
	Howard College	Eastlake	
	Tuskegee Institute (colored)	Tuskegee Institute.	Several courses in gen. agr.
	University of Alabama	University	El. and sec. agr., biological nat. study, 6 wks.
Arkansas	State Normal	Conway	El. agr.
California	State Normal School	San Diego	El. agr., methods of agr. instr., 6 wks.
	University of California	Berkeley	El. and sec. agr.; also grad. work. Several special courses for teachers, 6 wks.
Colorado	Colorado Agricultural College	Fort Collins	Gen. agr. and gardening, 6 wks.
	Denver Normal School	Denver	El. and sec. agr., 6 wks.
Connecticut	Agricultural College	Storrs	Nature study and agr. for teachers, 4 wks.
Florida	Normal Institute	Madison	El. agr.
	Rollins College	Winter Park	
Georgia	University of Georgia	Athens	Nature study, el. and sec. agr., 5 wks.
Idaho	Lewiston State Normal School.	Lewiston	El. agr. and gardening.
	State Normal School	Albion	Agr. for teachers.
	University of Idaho	Moscow	Agr. for teachers in el. and sec. schools, 6 wks.
Illinois	Northern Illinois State Normal School.	De Kalb	El. agr. and nature study for teachers.
	State Normal University	Normal	Two 6 wk. sessions, el. and sec. agr., agrl. nat. study. A series of 6 courses offered; 2 each year for 3 years.

List of institutions maintaining courses in agriculture in summer sessions—Continued.

State.	Institution.	Location.	Nature of course offered.
Illinois	State University	Urbana	Several courses in gen. agr. and special courses for teachers.
	Western Illinois State Normal School.	Macomb	Agr. for teachers of el. and sec. schools.
Indiana	Central Normal College	Danville	12 wk. course, el. agr.
	Goshen College	Goshen	Several courses for teachers.
	Hanover College	Hanover	Gen. agr. with lab. and field work.
	Muncie Normal Institute	Muncie	Gen. agr. courses.
	Purdue University	La Fayette	Several gen. agr., courses for teachers, 6 wks.
Iowa	State College of Agriculture and Mechanic Arts.	Ames	Several courses, gen. agr. and agrl. pedagogy.
	State Teachers' College	Cedar Falls	El. agr. for teachers, 6 wks.
	Upper Iowa University	Fayette	El. agr. and gardening, agrl. chem.
	Tabor College	Tabor	Lectures in agr., gardening.
	Western Normal College	Shenandoah	El. agr.
Kansas	State Agricultural College	Manhattan	Gen. agr., agr. for rural teachers, 6 wks.
	State Manual Training Normal School.	Pittsburg	El. agr.
	State Normal School	Emporia	Gen. agr., gardening, methods of teaching agr.
	Western State Normal School.	Hays	El. agr. for teachers, 9 wks.
	University of Kansas	Lawrence	Two courses only, sci. basis of agr. and insect life, no gen. agr. offered.
Kentucky	State University	Lexington	Agr. for teachers.
	Western Kentucky State Normal School.	Bowling Green	Nat. study and el. agr., 6 wks.
Louisiana	State Normal School	Natchitoches	School in session throughout the year. Agr. taught in summer quarter, 3 mos. Also special summer normal, 6 wks. for teachers.
	State University	Baton Rouge	Agr. and agr. education, 9 wks.
Maryland	Johns Hopkins University	Baltimore	No gen. agr. but courses nature study as preparation for agr. offered.
	Morgan College (colored)	....do	Methods of teaching agr.
Massachusetts	Agricultural College	Amherst	Several courses in agr. and country life for teachers, 4 wks.
	State Normal School	Hyannis	School gard., poultry raising, 4 wks.
Michigan	Northern State Normal School.	Marquette	Agr. for teachers in rural schools.
	State Normal School	Ypsilanti	El. agr., 6 wks.
	University of Michigan	Ann Arbor	Agrl. botany only, 8 wks.
	Western State Normal School.	Kalamazoo	Nature study and agr., 6 wks.
Minnesota	Northwest Agricultural School	Crookston	6 wks. teachers' training school. Courses in el. agr. for teachers.
	State Normal School	Mankato	El. agr. and agr'l. nat. study.
	State Normal School	Moorhead	El. agr., 12 wks.
	State Normal School	Winona	Agr. for teachers.
	State Normal School	St. Cloud	El. agr., 6 wks., two rec. per day.
	University of Minnesota (Agricultural College).	St. Anthony Park	Several courses, agr. for teachers, and gen. agr.
Mississippi	Mississippi Normal College	Hattiesburg	6 wks. course, el. agr.
	West Central Agricultural School.	Morris	6 wks. teachers' training school. Courses in el. agr. for teachers.
Missouri	Central Wesleyan College	Warrenton	El. agr.
	First District Normal School	Kirksville	Gen. agr. with field work.
	Missouri Wesleyan	Cameron	Gen. agr. lab. work, 60-day session.
	Missouri Valley College	Marshall	El. agr. with lab. work in summer quarter, for teachers.
	Northwest Normal School	Maryville	Gen. agr.
	State Normal School	Cape Girardeau	Gen. and el. agr.
	University of Missouri	Columbia	Gen. agr.; also special course for teachers, 9 wks.
Nebraska	Nebraska Wesleyan University.	University Place	El. agr.
	State Normal School	Chadron	Two courses for teachers.
	State Normal School	Peru	Gen. agr. during summer quarter. Special course for rural teachers. School continues in regular session during summer quarter.

List of institutions maintaining courses in agriculture in summer sessions—Continued.

State.	Institution.	Location.	Nature of course offered.
Nebraska	State Normal School	Kearney	8 wks. course in agr.
	State Normal School	Wayne	8 wks. agr. for teachers.
	University of Nebraska	Lincoln	8 wks. session. Several courses for high-school teachers.
	York College	York	El. agr., 6 wks.
Nevada	University of Nevada	Reno	6 wks. course.
New Hampshire	Plymouth Normal School	Plymouth	El. agr., nature study, gardening, 8 wks.
New Mexico	New Mexico Normal University.	Las Vegas	El. agr.
New York	Cornell University	Ithaca	Numerous courses in gen. agr. and agr. for teachers.
	Columbia University, Teachers' College.	New York	Gen. agr. with field work, nature study, agr. for teachers, 6 wks.
	New York University	New York	School gardening only.
	Syracuse University	Syracuse	Gen. agr., 6 wks.
North Carolina	East Carolina Teachers' Training School.	Greenville	Agr. for teachers.
	State Normal and Industrial College.	Greensboro	El. agr. and nature study, 8 wks.
	University of North Carolina	Chapel Hill	El. agr., nat. study, gardening.
North Dakota	Agricultural College	Agricultural College.	6 wks. course, agr. for teachers.
	Jamestown College	Jamestown	Agr. for common schools, 6 wks.
	State Normal School	Mayville	El. agr., gardening, 6 wks.
	State Normal School	Valley City	6 wks. course for teachers.
Ohio	Antioch College	Yellow Springs	El. agr.
	Defiance College	Defiance	6 wks. course, el. agr.
	Dennison College	Granville	El. agr., sec. agr. nat. study, methods of teaching agr.
	Lebanon University	Lebanon	Agr. for teachers of rural schools, 8 wks. course.
	Miami University	Oxford	Agr. and nat. study for teachers, 6 wks.
	Muskingum College	New Concord	El. agr., 9 wks.
	Ohio Northern University	Ada	Gen. agr. and gardening, 8 wks.
	Ohio State University	Columbus	Gen. agr. for teachers, 8 wks.
	Otterbein University	Westerville	El. agr., 6 wks.
	State Normal College of Ohio University.	Athens	El. agr. and gardening, 9 wks.
	West Lafayette College	West Lafayette	
	University of Wooster	Wooster	El. and sec. agr., teaching of agr., 8 wks.
Oklahoma	Agricultural and Mechanical College.	Stillwater	6 wks. course for teachers.
	Central Normal School	Edmond	Agr. nat. study; gen. agr., with lab. work.
	East Central State Normal School.	Ada	El. agr., gardening, 10 wks.
	Southwestern State Normal School.	Weatherford	Gen. agr., 10 wks.
Oregon	Agricultural College	Corvallis	El. agr.; methods of teaching agr., 6 wks.
	Oregon Normal School	Monmouth	El. agr., gard., rural sociology.
Pennsylvania	Allegheny College	Meadville	Agr. for teachers.
	Geneva College	Beaver Falls	El. agr., 6 wks.
	Grove City College	Grove City	Agr., hort., agr. chem., 10 wks.
	Juanita College	Huntingdon	El. agr., 6 wks.
	State College	State College	Gen. agr. and gardening, 6 wks.
	State Normal School	Westchester	Agr. for teachers, 6 wks.
South Carolina	Winthrop Normal College	Rock Hill	Agr. and nat. study.
South Dakota	Dakota Wesleyan University.	Mitchell	Agr. with methods of teaching. Rural economics.
	Huron College	Huron	Series of special lectures on agr. during 6 wks. summer term.
	Lutheran Normal School	Sioux Falls	Agr. botany, 6 wks.
	Northern Normal and Industrial School.	Aberdeen	El. agr. Methods of teaching, with special lectures on agr.; 6 wks. session.
	Sioux Falls College	Sioux Falls	El. agr.
	State College	Brookings	Agr. and nat. study.
	State Normal School	Valley City	El. agr., 6 wks.
	Yankton College	Yankton	El. agr. for rural teachers, 6 wks.
Tennessee	East Tennessee State Normal School.	Johnson City	Gen. and el. agr., gardening.
	Lincoln Memorial University.	Cumberland Gap	School in session throughout year. El. agr. taught in summer quarter.
	Morristown Normal and Industrial College.	Morristown	Brief course in el. agr.

List of institutions maintaining courses in agriculture in summer sessions—Continued.

State.	Institution.	Location.	Nature of course offered.
Tennessee	West Tennessee State Normal School.	Memphis	Agr., with lab. and field work.
	University of Tennessee	Knoxville	Gen. agr. and agr. ed., 6 wks.
Texas	Agricultural and Mechanical College.	College Station	6 wks. course for teachers.
	Baylor College	Belton	Agr. for teachers in rural schools.
	Baylor University	Waco	Agr. for teachers, with special lecture.
	Sam Houston Normal Institute.	Huntsville	El. agr., 8 wks.
	University of Texas	Austin	El. and gen. agr., 6 wks.; also agr. ed.
	North Texas State Normal School.	Denton	Agr., 8 wks.
Utah	Agricultural College	Logan	Agr. and nat. study, 6 wks.
Vermont	University of Vermont	Burlington	Agr. for teachers, 6 wks.
Virginia	Emory and Henry College	Emory	El. agr.
	College of William and Mary	Williamsburg	(Summer session held at Dublin, Va.). El. agr., 8 wks.
	St. Paul Normal and Industrial School (colored).	Lawrenceville	One month, el. agr., with practical farm work.
	State Female Normal School	Farmville	Agr. and nat. study.
	State Normal and Industrial School for Women.	Harrisonburg	Nat. study, gard., el. agr. Two sessions, 6 and 4 wks., respectively.
	State Summer School	Fredericksburg	El. agr., 4 wks.
	University of Virginia	Charlottesville	Gen. agr., nat. stud., gard., 6 wks.
	Virginia Normal and Industrial Institute (colored).	Petersburg	El. agr., nat. stud., gard., 6 wks.
	Virginia Union University (colored).	Richmond	El. agr., 6 wks.
Washington	State College	Pullman	Gen. agr.; methods of teaching agr., 6 wks.
	State Normal School	Bellingham	El. agr., 9 wks.
	State Normal School	Cheney	El. and gen. agr., gardening, 9 wks.
	State Normal School	Ellensburg	Agr., nat. study, gard.
	University of Washington	Seattle	Gen. agr., hort., gardening.
West Virginia	Davis and Elkins College	Elkins	El. agr.
	Fairmont State Normal School	Fairmont	El. agr.
	West Virginia University	Morgantown	El. and gen. agr., 9 wks.
Wisconsin	Outagamie County Training School.	South Kaukauna	El. agr. for teachers; also lab. course, 6 wks. session.
	River Falls State Normal School.	River Falls	El. agr., 8 wks.
	State Normal School	La Crosse	Agr., 6 wks.
	State Normal School	Oshkosh	Agr., 6 wks.
	State Normal School	Superior	El. agr., 6 wks.
	State Normal School	Whitewater	El. agr. for teachers.
	University of Wisconsin	Madison	Grad. and undergrad. work in gen. agr. Courses for teachers of rural and sec. schools.
	Waupaca County Normal School.	New London	El. agr. for teachers.
Wyoming	University of Wyoming	Laramie	Gen. agr., 6 wks.

SPECIAL SHORT OR EXTENSION COURSES.

An effort on the part of some of the colleges and normal schools to give special facilities for the training of employed teachers in the subject of agriculture is shown by the fact that in a number of instances special short courses in agriculture are offered during the regular school session, usually in the spring term and lasting through the months of April and May. Thus, the Agricultural and Mechanical College of North Carolina holds a special "May school" for teachers at which agriculture is taught. Some of the schools continue their sessions into June for the benefit of teachers whose schools close early in the spring. Harvard University offers special work

for graduate students in a term lasting from February to November, provision being made, however, for students to work during the summer only, if desired. A bachelor's degree is required for admission to this work. Columbia University offers to employed teachers the advantages of afternoon, evening, and Saturday classes during the regular school year, and agriculture is one of the subjects thus taught. Afternoon and Saturday classes in agriculture for teachers are also offered in the Fresno State Normal School, Fresno, Cal.

Agriculture has come in recent years to hold a prominent place on the programs of teachers' institutes. However, these institutes are generally in session only one or two weeks at the most, hence the instruction given there must necessarily be more or less cursory and superficial. Nevertheless, these institutes have doubtless been of much influence in arousing the interest of teachers in the subject of agriculture and in the inspiration they have given to teachers to become better prepared. The plans on which institutes are held vary greatly in the different States, and in many States they are being gradually superseded either by brief inspirational teachers' meetings on the one hand, or on the other hand by summer normals, in which the teachers of a number of counties meet together at some central location, often at some college or other institution in connection with the ordinary summer school. This plan is followed, for example, in Virginia and in South Dakota. At Aberdeen, S. Dak., 10 counties will hold their joint institute a period of one week in connection with the summer school of the Northern Normal and Industrial School. A very promising plan, devised by Garland A. Bricker, of the Ohio State University, has been successfully put into operation by him in Ohio. This plan is to organize and conduct special extension schools for teachers in various counties in the State, these schools being in charge of instructors furnished by the extension staff of the State agricultural college. The funds necessary to carry on these extension schools are, according to a ruling of the Attorney General of the United States, available to the land-grant colleges under a proviso of the Nelson Amendment (34 Stat. L., 1256, 1281), approved March 4, 1907, by which a portion of the funds appropriated by this act from the Federal Treasury for the use of these colleges may be used "for providing courses for the special preparation of instructors for teaching the elements of agriculture and the mechanic arts."

Prof. Bricker's plan is to organize a teachers' extension school in cooperation with the local school authorities whenever a sufficient number of teachers in one locality have signified their desire to enroll and take the course, on much the same plan as that followed by many agricultural colleges in conducting farmers' short courses. To cover local expenses a small fee is charged each teacher who

enrolls. Prof. Bricker's plan is to hold the sessions of the school on Saturdays, either of consecutive or alternate weeks, the session continuing for six Saturdays. There would seem to be no reason why a similar teachers' short course might not be conducted continuously for a week or two weeks in connection with the teachers' institute, or the short course made a substitute for the regular institute or elective therefor at the option of the teacher.

The following is a list of institutions offering short or extension courses in agriculture for teachers:

List of institutions offering special short courses or extension courses in agriculture for teachers.

State.	Institution.	Location.	Nature of course.
California	Fresno State Normal School	Fresno	Evening and Saturday classes in agriculture for teachers.
Indiana	Moores Hill College	Moores Hill	Special teachers' course during spring term.
	Vincennes University	Vincennes	Do.
Kansas	State Agricultural College	Manhattan	Special courses during spring term for rural and high-school teachers.
Massachusetts	Harvard University (Graduate School of Applied Science).	Cambridge	Term from February to November. Graduate work in entomology and applied biology. No work in agriculture, as such, offered. Students may take summer work only.
Michigan	Gratiot County Normal	Ithaca	Ten weeks' course in elementary agriculture offered in spring term.
Mississippi	Agricultural and Mechanical College.	Agricultural College.	Short course for teachers during spring term.
	Industrial Institute and College.	Columbus	Two terms of six weeks each in spring, with special course for teachers.
New York	Columbia University	New York	Afternoon and Saturday classes in agriculture. Lecture and laboratory work.
North Carolina	Agricultural and Mechanical College.	West Raleigh	Special "May school" for teachers, with courses in agriculture and gardening.
Ohio	State University	Columbus	Special extension schools in agriculture for teachers, at various points in State. Held on Saturdays.
Pennsylvania	Central State Normal	Lock Haven	Seven weeks' course in agriculture and nature study in spring term, for teachers.
	Clarion State Normal	Clarion	Course in agriculture and nature study in spring term, for teachers.
	Millersville State Normal	Millersville	Course in agriculture and nature study during spring term, for teachers.
West Virginia	State Normal School	Glenville	Elementary agriculture during spring term.
Wisconsin	Oneida County Teachers' Training School.	Rhinelander	School continues in session until last of June for benefit of teachers. Agriculture offered in spring term.

CORRESPONDENCE COURSES.

The study of agriculture by correspondence has grown rapidly in favor in the last few years, and this method of study has many advantages which adapt it specially to the needs of employed teachers. Probably chief among these advantages is the fact that by this plan the work can be taken up and pursued at the convenience of the

student without any interruption of his regular employment and without taking up the greater part of the vacation period. The expense incident to a correspondence course is usually small. Another advantage lies in the fact that correspondence work can be carried on by single individuals, and the student is not required, therefore, to attend upon the sessions of any institution, thus saving money, time, and travel. It is undoubtedly true that under the guidance of a good correspondence course much more systematic and thorough work can be done than if the student depends upon mere general reading.

On the other hand, correspondence study undoubtedly has many disadvantages. It is hardly possible for the student to do more than an elementary grade of work by this method, and there is considerable danger of his getting incorrect ideas on the more complex questions which arise, because of the absence of any one to question him and to correct his inaccurate impressions. Furthermore, there is a lack of enthusiasm in isolated study which is generally found when several students are associated together. No one can hope to learn as much or as readily by the correspondence method as when associated with other students in a class under the direct supervision of a competent instructor. The personality of such an instructor is a great factor in class instruction, which is wholly lacking in correspondence work. Another great disadvantage of correspondence work lies in the practical impossibility of doing thorough laboratory or experimental work. Some simple experiments which do not require any apparatus, or only such equipment as may be constructed at home, may, of course, be performed; and some field observations and experiments may be conducted if the student is industrious and conscientious enough, but at best the work of this sort must be more or less crude and unsatisfactory.

The popular demand for correspondence courses in agriculture is evidenced by the number of State and private institutions in which such courses are now offered. The results of a recent investigation by this office show that at present there are in the United States and its territories, as nearly as can be learned, 25 State institutions and 5 private schools in which some regularly established correspondence work in agriculture may be done. Besides, there are five private correspondence schools which offer more or less complete courses in agriculture. In at least seven of the State schools college credit may be obtained by students having the proper qualifications upon passing satisfactory examinations. In one, credit may be prescribed by the State superintendent of public instruction. In several others certificates are awarded for the successful completion of a certain number of courses. The number of distinct courses in agriculture offered by these various institutions ranges from 1 to 56. Nearly all these institutions offer courses in elementary agriculture or agricultural

pedagogy which are adapted especially for teachers in rural and elementary schools. Many of the courses in the State institutions are free to residents of the State except for the cost of necessary textbooks and postage charges. Others of the State schools charge small fees, the highest being $5 per course. The tuition charges in the private correspondence schools are generally about $20 to $25 for the complete courses, and frequently the necessary textbooks are furnished.

The plan of work in the correspondence courses is in general the same. Certain parts of the textbooks or bulletins are assigned to be studied, and when these have been read the student is required either to outline the contents of the assignment or to fill out certain question blanks as a kind of examination on the lesson. These written outlines or reports are then mailed to the school, where mistakes are checked up and corrected either by letter or by marking on the report references to the page of the text where the correct statement is found, the corrected report being then returned to the student. In a few instances the student is required to perform simple experiments in addition to the textbook studies.

Below is a list of institutions from which correspondence instruction in agriculture may now be obtained. Most of the State schools accept for enrollment nonresident students, though in several instances the fees are higher for persons not residing in the home States.

Correspondence courses in agriculture.

[In public and private colleges and normal schools.

State.	Institution.	Location.	Person in charge.	Number of courses.	Cost.	Credit given.	Nature of work.	Remarks.
Arkansas	University of Arkansas.	Fayetteville	Prof. J. M. Wilson	10	Free, except books and postage.	No credit	Studies of texts and bulletins.	Course I, elementary agriculture specially for teachers.
California	University of California.	Berkeley	Dean Thomas F. Hunt.	.....	No fees	....do	Studies of texts, bulletins, and prepared lessons.	Several courses offered. Courses for teachers in preparation.
Florida	University of Florida	Gainesville	Dean J. J. Vernon	14	$1 registration and cost of supplies.	....do	Studies of texts, etc.; experiments.	Course I, elementary agriculture specially for teachers.
Do	Agricultural and Mechanical College for Negroes.	Tallahassee	Pres. N. B. Young	1	No fees	....do	Study of texts	Course is for teachers.
Idaho	State Normal School	Albion	Pres. G. A. Axline	1	$5 enrollment fee	Credit on normal course.	Study of text; reference reading.	Elementary agriculture and gardening for teachers.
Iowa	Western Normal College.	Shenandoah	Pres. J. M. Hussey	1	$15 for full course	Credit on college course.	Study of texts	Intended for teachers.
Kansas	State Agricultural College.	Manhattan	Prof. H. L. Kent	56	From $1 to $4 per course.	College credit under certain conditions.	Studies of texts and bulletins.	Course A I, elementary agriculture, adapted for teachers.
Do	Highland College	Highland	Pres. W. C. T. Adams	1	$10 for full course	Credit on college course.	....do	Elementary agriculture for teachers.
Do	State Manual Training Normal School.	Pittsburg	Prin. Geo. E. Myers.	4	.....	No credit	Lesson outlines, with reference readings from texts and bulletins.	Course 1 is in elementary agriculture, suited to teachers.
Maine	University of Maine.	Orono	Dean L. S. Merrill	11	Free, except supplies.	No credit toward degree.	Studies of texts, etc.	
Massachusetts	Agricultural College.	Amherst	Prof. W. D. Hurd	16	$1 per course, plus cost of supplies.	No credit	Prepared lessons; texts for collateral reading.	Course 10, "Agriculture in common schools," and Course II "Agricultural Education" especially for teachers.
Mississippi	Agricultural and Mechanical College.	Agricultural College.	Prof. J. K. Morrison.	1	No fees	....do	Bulletins prepared by college.	Course intended for poultry clubs.
Do	Normal College	Hattiesburg	Prof. T. F. Jackson	1	$2 enrollment fee	Credit allowed on normal course.	Outlines for studies of texts and bulletins.	Course intended for rural teachers.
Missouri	University of Missouri.	Columbia	Secy. S. D. Groner	14	$3.50 per credit-hour; bulletins free.	Credit on two-year course.	Study of bulletins	Intended for farmers, but open to teachers.

Correspondence courses in agriculture—Continued.

State.	Institution.	Location.	Person in charge.	Number of courses.	Cost.	Credit given.	Nature of work.	Remarks.
Nebraska	University of Nebraska.	Lincoln	Prof. A. A. Reed	3	$5 per course, cost of texts extra.	College credit may be obtained.	Study of texts, etc.	Two courses for high-school teachers; one for rural teachers.
New Mexico	College of Agriculture and Mechanic Arts.	State College	J. O. Miller, registrar.	3	$1 to cover postage; texts to be purchased.	No credit	....do	Course I, agricultur for teachers.
Oregon	Agricultural College.	Corvallis	Prof. R. D. Hetzel	3	$1 enrollment plus cost of books, etc.	..do	Study of texts	
Pennsylvania	State College	State College	Prof. Thos. I. Mairs	35	Cost of supplies only.	No credit toward degree.	Study of texts, etc.	Course 73, pedagogy of agriculture.
South Carolina	Agricultural (Clemson College).	Clemson College.	Prof. W. W. Long	1	$1 enrollment to cover postage.	No credit	....do	All courses intended for teachers.
South Dakota	Agricultural and Mechanical College.	Brookings	Prof. A. A. Brigham	30	From $0.50 to $1 per course, plus supplies.	...do	.....do	Course D, teachers course.
Do	State Normal	Madison	Prof. L. G. Atherton	4	No charge except cost of texts.	Prescribed by State superintendent.	Studies of texts, etc., with experiments.	All courses intended for teachers.
Texas	Agricultural and Mechanical College.	College Station	Prof. O. H. Sellers	20	From $0.50 to $3.50 per course.	No credit except certificate.	Study of texts, bulletins, etc.	Course 1, elementary agriculture for teachers.
Utah	Agricultural College.	Logan	Prof. Geo. B. Hendricks.	12	$5 per course	College credit may be obtained.	Study of texts; field and laboratory work.	
Vermont	State Normal	Castleton	Prof. H. K. Farrar	1	$1 enrollment; lesson bulletins furnished free.	None	Special lessons prepared for course.	Course in nature study and agriculture, so arranged that it may be used by teachers in school work as well as studied by the teacher.
Wyoming	University of Wyoming.	Laramie	Prof. T. S. Parsons	2	$5 per course	College credit may be obtained.	Study of texts and bulletins.	

Private correspondence schools.

The following private correspondence schools advertise full courses in agriculture:

American Farmers School, Minneapolis, Minn.
Correspondence College of Agriculture, Fort Wayne, Ind.
Home Correspondence School, Springfield, Mass.
International Correspondence Schools, Scranton, Pa.
Interstate Correspondence School, Chicago, Ill.

READING COURSES.

Several of the State agricultural colleges, while not conducting regular correspondence work in agriculture, offer assistance by means of reading courses to persons wishing to engage in home study. These reading courses are based either upon standard textbooks suggested to the student or upon bulletins issued by the college, in some cases particularly for this purpose. In general, the courses are not intended for teachers but rather for farmers and farmers' wives, although teachers are encouraged to enroll and may derive much benefit from the courses pursued. No credit, so far as can be learned, either toward college degree or certification is allowed for the completion of such courses in any instance.

List of institutions offering reading courses in agriculture.

State.	Institution.	Location.	Nature of course.	Fees.
Arizona	University of Arizona.	Tucson	"Timely Hints for Farmers." Bulletins.	None.
Michigan	Agricultural College.	East Lansing	Based on standard texts. Written reports required.	$1 enrollment for nonresidents.
New Hampshire	New Hampshire College.	Durham	Based on standard texts. Organized for farmers, but open to teachers.	None.
New York	Cornell University, State College of Agriculture.	Ithaca	Special series of bulletins published by college. Questions answered where desired. Two courses—The Farm and The Farm Home.	
Ohio	State University, College of Agriculture.	Columbus	Farmers' reading course based on special series of bulletins.	None.

A SUGGESTED READING COURSE IN AGRICULTURE BASED ON FARMERS' BULLETINS.

The output of agricultural literature in recent years has been prodigious. Numerous farm papers, textbooks, publications of agricultural societies and associations, State and Government publications, all offer opportunity for learning about agriculture. As a rule the information contained in farm papers is more or less scrappy and incomplete, hence it can seldom if ever be used as the basis of systematic study. Textbooks are excellent when they can be obtained, but their cost is considerable, hence the average teacher is as a rule unable to procure more than one or two, if any, and these are generally very elementary in character and often not well selected. Since many of the State and Government publications are technical in character, it is often hard to make a proper selection from this source. In the belief that there are many teachers who would be glad to avail themselves of an opportunity to follow out a thorough course in agricultural reading if one were outlined for them and the necessary text material placed within their reach, the following list of the free publications of the United States Department of Agriculture has been prepared as the basis of such a course.

Unfortunately this list is incomplete in some subjects on which no publications of a popular character are now available. For example, there are few bulletins to be listed dealing with cattle, none with horses, and none of a general nature treating of cotton. Doubtless these and similar deficiencies in this list will be supplied at some time in the future by the department. In the meantime in many of the States bulletins may be obtained from the State agricultural college or experiment station to supplement this list.

With but few exceptions the publications listed are Farmers' Bulletins, since they are generally less technical in character than the bureau circulars and bulletins, and the intention is to select only publications more or less popular in style which may be comprehended easily by the ordinary reader. Even as it is, the Farmers' Bulletins are themselves unsatisfactory in many instances for this kind of use, since they are more adapted for reference purposes than for general reading and study.

On a number of the topics for which publications have been selected and classified in this list additional publications dealing in a more detailed manner with particular phases of the general topic can be obtained if desired. For example, under the subject of "Horticulture—Fruits," there are available in addition to those listed a number of Farmers' Bulletins dealing with particular kinds of fruits, such as strawberries, raspberries, cranberries, and others. Information as to these bulletins may be obtained by reference to the complete list of available Farmers' Bulletins issued by the Division of Publications, United States Department of Agriculture, Washington, D. C.

All the publications listed may be obtained free of cost on application to the United States Department of Agriculture, so long as they are available. Should it happen that any are not available for free distribution when requested they may generally be obtained by purchase from the Superintendent of Documents, Government Printing Office, Washington, D. C. His price for all Farmers' Bulletins and circulars is 5 cents each, but bureau bulletins have various prices, depending upon the cost of publication in each instance.

Perhaps the best method to be followed by the individual reader in using these bulletins as a systematic reading course is to secure the bulletins listed under some single topic, such as "Soils," for example, and thoroughly master all that the publications contain on this subject before going on with the next topic. It will be found very helpful, and a good way to fix important information in the mind as well as to test the reader's understanding of what he has read, if the student prepares an outline of the important points gleaned from the text matter as the reading proceeds. It is important, however, that this outline be made in the reader's own language, avoiding a mere copying of extracts and quotations from the text, since the benefit to be derived from this exercise lies in the possi-

bility it affords of testing the reader's ability to convert the author's thought into such form that it actually becomes his own. Inability to tell in one's own words what has been read is good evidence that the reading has not been done understandingly. The work of selecting the essential thoughts from the text matter and arranging them in a logical outline will help to organize the ideas in the mind of the reader, and to fix them more permanently in his memory, than would be possible if the reading were done without any attempt at picking out and writing down the important facts. Besides, this exercise will act as a sort of brake to safeguard against too rapid and cursory reading.

Where there are several persons in the same locality who wish to pursue the reading course it will be a good plan for them to unite in a reading club, and meet occasionally to quiz one another. In this way the benefits of an exchange of ideas and of the increased enthusiasm arising from association will be derived. It is suggested that county superintendents might be able to work out a plan whereby a few sets of these publications could be exchanged between groups of teachers in the same county, and thus be used as the basis of systematic agricultural reading-club work.

A list of publications of the United States Department of Agriculture suggested for an agricultural reading course.

I. AGRONOMY.

Topic.	Title.	Publication.
Soils	Soil Fertility	Farmers' Bulletin 257.
	The Renovation of Worn-Out Soils	Farmers' Bulletin 245.
	Soil Conservation	Farmers' Bulletin 406.
Fertilizers	Commercial Fertilizers	Farmers' Bulletin 44.
	Barnyard Manure	Farmers' Bulletin 192.
	Leguminous Crops for Green Manuring	Farmers' Bulletin 278.
Plant production	The Propagation of Plants	Farmers' Bulletin 157.
	Testing Farm Seeds in the Home and in the Rural School.	Farmers' Bulletin 428.
Cereal crops	Barley: Growing the Crop	Farmers' Bulletin 443.
	Corn Cultivation	Farmers' Bulletin 414.
	Seed Corn	Farmers' Bulletin 415.
	Harvesting and Storing Corn	Farmers' Bulletin 313.
	Oats: Growing the Crop	Farmers' Bulletin 424.
	Oats: Distribution and Uses	Farmers' Bulletin 420.
	Rice Culture	Farmers' Bulletin 417.
	Durum Wheat	Farmers' Bulletin 534.
Fiber crops	Cotton Seed and Its Products	Farmers' Bulletin 36.
	Sea Island Cotton	Farmers' Bulletin 302.
	Flax Culture	Farmers' Bulletin 274
Forage crops	The Adulteration of Forage Plant Seeds	Farmers' Bulletin 382.
	Our Native Pasture Plants	Yearbook Sep. 223.
	Alfalfa	Farmers' Bulletin 339.
	Red Clover	Farmers' Bulletin 455.
	Cowpeas	Farmers' Bulletin 318.
	Millets	Farmers' Bulletin 101.
	Rape	Farmers' Bulletin 164.
	Soy Beans	Farmers' Bulletin 372.
	Vetches	Farmers' Bulletin 515.
Truck crops	Good Seed Potatoes and How to Produce Them	Farmers' Bulletin 533.
	Potato Culture	Farmers' Bulletin 35.
	The Sugar Beet	Farmers' Bulletin 52.
	Sweet Potatoes	Farmers' Bulletin 324.
Miscellaneous field crops.	Broom Corn	Farmers' Bulletin 174.
	Growing and Curing Hops	Farmers' Bulletin 304.
	Tobacco Curing	Farmers' Bulletin 523.
	The Peanut	Farmers' Bulletin 431.
Crop pests	Weeds, and How to Kill Them	Farmers' Bulletin 28.
	Important Insecticides	Farmers' Bulletin 127.
	Cotton Wilt	Farmers' Bulletin 333.
	The Boll Weevil Problem	Farmers' Bulletin 512.
	The Smuts of Wheat, Oats, Barley, and Corn	Farmers' Bulletin 507.

A list of publications of the United States Department of Agriculture suggested for an agricultural reading course—Continued.

II. ANIMAL HUSBANDRY.

Topic.	Title.	Publication.
Bees	Bees	Farmers' Bulletin 447.
Birds	Some Common Birds	Farmers' Bulletin 54.
	Some Common Game, Aquatic, and Rapacious Birds in Their Relation to Man.	Farmers' Bulletin 497.
	Fifty Common Birds of Farm and Orchard	Farmers' Bulletin 513.
	Does it Pay the Farmer to Protect Birds?	Yearbook Sep. 443.
Cattle	The Dairy Herd	Farmers' Bulletin 55.
	Breeds of Dairy Cattle	Farmers' Bulletin 106.
	Tuberculosis	Farmers' Bulletin 473.
Hogs	Pig Management	Farmers' Bulletin 205.
	Hog Cholera	Farmers' Bulletin 379.
Sheep	Raising Sheep for Mutton	Farmers' Bulletin 96.
Poultry	Standard Varieties of Chickens	Farmers' Bulletin 51.
	Ducks and Geese	Farmers' Bulletin 64.
	Turkeys	Farmers' Bulletin 200.
	The Guinea Fowl	Farmers' Bulletin 234.
	Poultry Management	Farmers' Bulletin 287.
Feeds and feeding	The Feeding of Farm Animals	Farmers' Bulletin 22.
	Sheep Feeding	Farmers' Bulletin 79.
	Principles of Horse Feeding	Farmers' Bulletin 170.

III. HORTICULTURE.

Fruits	Small Fruit Culture for Market	Farmers' Bulletin 47.
	The Home Fruit Garden	Farmers' Bulletin 154.
	Pruning	Farmers' Bulletin 181.
	The Apple and How to Grow It	Farmers' Bulletin 113.
	Grape Propagation, Pruning, and Training	Farmers' Bulletin 471.
	The Pear, and How to Grow It	Farmers' Bulletin 482.
	Fungicides and Their Use in Preventing Diseases of Fruits.	Farmers' Bulletin 243.
	Information about Spraying for Orchard Insects	Yearbook Sep. 480.
Flowers	Annual Flowering Plants	Farmers' Bulletin 195.
Vegetables	The Home Vegetable Garden	Farmers' Bulletin 255.
	Frames as a Factor in Truck Growing	Farmers' Bulletin 460.
Landscaping	Beautifying Home Grounds	Farmers' Bulletin 185.
	Lawn Soils and Lawns	Farmers' Bulletin 494.

IV. FORESTRY.

General	Primer of Forestry, Part I: The Forest	Farmers' Bulletin 173.
	Primer of Forestry, Part II: Practical Forestry	Farmers' Bulletin 358.
	Trees of the United States Important in Forestry	Yearbook Sep. 112.
Tree planting	Forest Planting and Farm Management	Farmers' Bulletin 228.
	Tree Planting by Farmers	Yearbook Sep. 566.
Forest influences	Surface Conditions and Stream Flow	Forest Ser. Circ. 176.
Forest fires	The Protection of Forests from Fires	Forest Ser. Bul. 82.
	Forest Fires	Forest Ser. Bul. 117.
Wood preservation	The Preservative Treatment of Farm Timbers	Farmers' Bulletin 381.
Forest conservation	Progress in Saving Forest Waste	Yearbook Sep. 534.

V. AGRICULTURAL ENGINEERING.

Farm buildings	Practical Suggestions for Farm Buildings	Farmers' Bulletin 126.
	Modern Conveniences for the Farm Home	Farmers' Bulletin 270.
Farm mechanics	The Use of Concrete on the Farm	Farmers' Bulletin 461.
	Corn Harvesting Machinery	Farmers' Bulletin 303.
	The Cream Separator on Western Farms	Framers' Bulletin 201.
	The Use of Alcohol and Gasoline in Farm Engines	Farmers' Bulletin 277.
	Repair of Farm Equipment	Farmers' Bulletin 347.
Roads	The Use of the Split-Log Drag on Earth Roads	Farmers' Bulletin 321.
	Sand-Clay and Burnt-Clay Roads	Farmers' Bulletin 311.
	Macadam Roads	Farmers' Bulletin 338.
	Benefits of Improved Roads	Farmers' Bulletin 505.
Drainage	Drainage of Farm Lands	Farmers' Bulletin 187.
Irrigation	Practical Information for Beginners in Irrigation	Farmers' Bulletin 263.
	How to Build Small Irrigation Ditches	Farmers' Bulletin 158.

A list of publications of the United States Department of Agriculture suggested for an agricultural reading course—Continued.

VI. AGRICULTURAL TECHNOLOGY.

Topic.	Title.	Publication.
Dairying	Butter Making on the Farm	Farmers' Bulletin 241.
	Cheese Making on the Farm	Farmers' Bulletin 166.
	The Care of Milk and Its Use in the Home	Farmers' Bulletin 413.
Sirup and sugar making	The Production of Maple Sirup and Sugar	Farmers' Bulletin 516.
	Sorghum Sirup Manufacture	Farmers' Bulletin 477.

VII. AGRICULTURAL ECONOMICS.

Farm management	What Is Farm Management	Bur. Pl. Ind. Bul. 259.
	Types of Farming in the United States	Yearbook Sep. 487.
	Replanning a Farm for Profit	Farmers' Bulletin 370.
Farm labor	The Supply and Wages of Farm Labor	Yearbook Sep. 528.
	Seasonal Distribution of Labor on the Farm	Yearbook Sep. 567.
Farm accounts	Farm Bookkeeping	Farmers' Bulletin 511.
Marketing	Marketing Farm Produce	Farmers' Bulletin 62.
	Cooperation in the Handling and Marketing of Fruit	Yearbook Sep. 546.

VIII. AGRICULTURAL EDUCATION.

General	Education for Country Life	Office Expt. Stas. Circ. 84.
	The American System of Agricultural Education	Office Expt. Stas. Circ. 106, Rev.
	The Teaching of Agriculture in the Rural Common Schools.	Office Expt. Stas. Circ. 60.
School gardens	The School Garden	Farmers' Bulletin 218.
	Forest Nurseries for Schools	Farmers' Bulletin 423.
Agricultural clubs	Boys' and Girls' Agricultural Clubs	Farmers' Bulletin 385.
	Organization and Instruction in Boys' Corn-Club Work	Bur. Pl. Ind. Doc. 803.
Special days in schools	Arbor Day	Forest Service Circ. 96.
	Bird Day in the Schools	Biolog. Survey Circ. 17.
School equipment	The Use of Illustrative Material in Teaching Agriculture in Rural Schools.	Yearbook Sep. 382.

ADDITIONAL COPIES of this publication may be procured from the SUPERINTENDENT OF DOCUMENTS, Government Printing Office, Washington, D. C., at 5 cents per copy

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